



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,426	08/30/2001	Vladislav Vashchenko	75292/13356	1844
7590 05/23/2005			EXAMINER	
Jurgen K. Vollrath 588 Sutter Street #531 San Francisco, CA 94102			NADAV, ORI	
			ART UNIT	PAPER NUMBER
			2811	
DATE MAILED: 05/23/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/944,426

Applicant(s)

VASHCHENKO, VLADISLAV

Examiner

ori nadav

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-4 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for the claimed limitations of forming a structure having at least one p-n junction between one of the p+ regions and at least one of the n+ regions in the p well, as recited in claim 2, since the p+ regions and at least one of the n+ regions in the p well are separated by an isolation region.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

Art Unit: 2811

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 3-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Ker et al. (6,465,848).

Regarding claims 3-4, Ker et al. teach in figure 3a and related text a method of increasing the holding voltage of a LVTSCR structure having an anode in an n-well 42 and a cathode in a p-well 44, the cathode being defined by an n+ region and a p+ region, comprising

forming at least one additional n+ region 60 and at least one additional p+ region 58 in the p-well to define at least one forward biased diode in the p-well, thereby providing an alternative current path from anode to cathode through said at least one diode,

wherein the alternative current path defines a lower resistance current path than the p-well.

Note that the broad recitation of the claim does not require the structure to have two n+ regions and two p+ regions in the p well, because defining a cathode as comprising an n+ region and a p+ region does not require the at least one additional n+ region and the at least one additional p+ region to be different regions than the regions of the cathode.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 2811

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ker et al. (6,465,848).

Ker et al. teach in figure 6 and related text a method of increasing the holding voltage of a LVTSCR structure that includes a pSCR and an nSCR.

Ker et al. do not teach in the embodiment of figure 6 the structure of the pSCR and the nSCR.

Ker et al. teach in figure 3a and related text a method of increasing the holding voltage of an nSCR LVTSCR structure that includes an n-well 42 and a p-well 44 formed in a substrate 40, an n+ region 46 and a p+ region 48 formed in the n-well 42, and an n+ region 54 and a p+ region formed in the p-well 44, wherein the LVTSCR structure having an anode in an n-well 42 and a cathode in a p-well 44, the cathode being defined by an n+ region and a p+ region, the method comprising forming at least one p+ region 58 and at least one n+ region 60 inside the p-well 44 of the structure to define at least one p-n junction between one of the p+ regions 58 and at least one of the n+ regions in the p well that is forward biased during normal operation.

Ker et al. teach in figure 4a and related text a similar method of increasing the holding voltage of an pSCR LVTSCR structure having a similar structure to that of the nSCR structure.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the nSCR and the pSCR structures described in the embodiments of figures 3a and 4a of Ker et al., in the device of figure 6, such that

Art Unit: 2811

at least one additional p+ region and at least one additional n+ region are formed inside the p-well of Ker et al.'s device in order to simplify the processing steps of making the device by using Ker et al.'s advantageous structure.

Regarding claim 4, Ker et al.'s device includes an alternative current path which defines a lower resistance current path than the p-well.

Response to Arguments

Applicant argues that there is support for the claimed limitations of forming a structure having at least one p-n junction between one of the p+ regions and at least one of the n+ regions in the p well, as recited in claim 2, because the p+ region 420 and the n+ region 422 are not isolated from each other and charge carriers can freely pass between regions 420 and 422 through the p-well 402.

Claim 2 recites a structure comprising at least one p-n junction between one of the p+ regions and at least one of the n+ regions in the p well. Although charge carriers can freely pass between regions 420 and 422 through the p-well 402, there is no support for the claimed limitations of forming a structure having at least one "p-n junction" between one of the p+ regions and at least one of the n+ regions in the p well, because a "p-n junction" requires a direct contact between the at least one p+ region and the at least one of the n+ regions.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Art Unit: 2811

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(571) 272-1660**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**.

A handwritten signature in black ink, appearing to read 'Ori Nadav', is positioned above the printed name and title.

O.N.
May 19, 2005

ORI NADAV
PRIMARY EXAMINER
TECHNOLOGY CENTER 2800